

THE CLAIMS OF MEDICINE TO BE REGARDED A SCIENCE.

AN
INTRODUCTORY LECTURE

DELIVERED

AT THE OPENING OF THE

THIRD SESSION IN

THE MEDICAL DEPARTMENT

OF THE

University of Nashville,

(31st October, 1853.)

BY

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PUBLISHED BY THE CLASS.

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MEDICAL DEPARTMENT, Nov. 2, 1853. }

PROF. PAUL F. EVE:

DEAR SIR—Pleased with your highly interesting Introductory, we tender you our thanks, and request a copy of the same for publication. Your complying with this request will much oblige the class we have the honor to represent.

Respectfully yours,

C. RAMSAY MAYSON, Ark.,
ROBT. BUCHANAN, Tenn.,
JOSEPH ECTOR, Miss.,
DAVID STERNS, Ala.,
R. D. KING, Texas,
L. A. DICKSON, Tenn.,
E. L. McTYRE, Ga.,
F. CUTLER, Mo.,
JOHN P. McCLENDON, Ky.,
G. N. RUSH, N. C.,

Committee.

NASHVILLE, 3d Nov., 1853.

To Messrs. MAYSON, BUCHANAN, ECTOR, STERNS, DICKSON, McTYRE, CUTLER,
McCLENDON, and RUSH, *Committee*:

GENTLEMEN,—I am much gratified the lecture received the approbation of the class, and I take pleasure in complying with their request so politely communicated through you.

In accepting for yourselves my kindest regards, convey to the class my best wishes for their success in life,

I am, gentlemen, your sincere friend.

PAUL F. EVE.

ADDRESS.

GENTLEMEN OF THE CLASS:

Two years ago, the Medical Department of the University of Nashville, having been fully organized, entered upon its first regular course of instruction. This is the opening of the third session, and I have been appointed to deliver the introductory. The agreeable office is thus assigned me of welcoming you to this new, but already highly prosperous institution. In the history of no other has success been greater. It is believed there were larger classes in attendance upon the first and second courses of lectures in this school of medicine, than in the same period after the organization of any other that ever existed; this too, without regard to age or nation. Two hundred and seventy-three students have matriculated here in the brief space of two years, of which number sixty-nine have graduated.* It has remained for this College to demonstrate, contrary to some expectation, how great was the necessity for another, even among the many already established throughout our country. It seems to have gone into operation complete in all its appointments. Though placed under the fostering care of the old University of Nashville, and endowed by it and by the generosity of a few friends in this city, yet, destitute of State patronage, it has mainly depended upon its own intrinsic merits; peculiar local advantages, which are extraordinary; and the zeal, honest intentions and determined efforts of the Faculty, and has aspired at once to equality with the oldest and best endowed institutions of the land. Asking no favors in the race of competition, but relying upon our own resources, and believing that well directed labor and the faithful discharge of duty in any honorable enterprise will always meet its reward, we have been content to let the profes-

* The third session has opened with the exact number of students with which the last course terminated; viz. 152. Is not this too unprecedented?

Be good enough to present this & at some future day return it, as I wish have it bound with some

sion and the public pronounce on the character of our school for medical instruction. In that decision, with profound gratitude, we meekly acquiesce; and occupying now vantage-ground, we dare not, even if ever so inclined, take any other position among our rivals than the one so unanimously accorded us, and which has greatly strengthened our own original resolution, *to know no superior, to be second to none.*

To all of us this is an interesting occasion: an hour big with consequences, bright with pleasing anticipations—the welcome season of greeting and congratulation. The assembling of a new class from various sections of our country, all desirous of enrollment in the fraternity of physicians; the recognition among you of several of our former pupils; the meeting of others of you for the first time, with the hope of securing your good opinion; the more intimate association for renewal of our arduous labors in a highly useful and benevolent calling; the anxious solicitude for your becoming fully prepared to practice that profession, and be here worthily crowned with its honors—these are indeed subjects well calculated to awaken interest in your behalf, and call forth expressions of sympathy and regard for your future welfare. Standing this day at the threshold of our temple dedicated to the healing art, we give you a cordial welcome to all its advantages; we bid you enter, and not only partake of what may be presented hereafter, but freely appropriate it to your own benefit. At the commencement of our intercourse, we offer you the right hand of fellowship and open the fraternal heart to receive you in friendship. Authorized as we are, we affectionately throw around you the fostering care of the brotherhood, cheerfully adopt you as candidates for membership into the great family of physicians, and pray God speed you in the acquisition of our noble science.

Coming from various localities of our widely extended country, and representing different interests in society, it is not unreasonable to suppose that even adverse circumstances may have influenced you to study

medicine. But however discordant these causes may have been, one predominant sentiment should now occupy your thoughts. The great object of your visit here is the preparation, on your part, for future usefulness. In this utilitarian age and nation, no man lives to himself: and he who contributes the largest amount of happiness should of course be esteemed the greatest benefactor. If knowledge be power, then the study of medicine is the acquisition of the best means of doing the most good. Of all the professions the one you have selected is incomparably the most benevolent, as regards man's temporal interests. By no other calling can such invaluable benefits be conferred. Its high prerogative is to relieve distress, to cure the sick, heal the wounded, give life even to the dying.

In opening the will of a distinguished physician (Dr. Martin), recently deceased in Great Britain, the following reasons were found assigned why he forbade his eight sons pursuing their father's vocation—1st, because it is confessedly the most difficult of all the professions; 2d, because the amount of labor, (not to speak of higher qualities), that can lead to a position of ordinary respectability in so difficult a profession as that of medicine, would lead a man to an eminent station in any other walk of life; and 3d, because as the medical profession is now constituted in society, honorary distinctions are out of the question for the majority of physicians and surgeons. Truthful, as no doubt, these reasons are, they might avail to discourage from the practice of medicine, were the few brief years we spend on earth all of life, or were the other professions only flowery beds of ease. But here all toil and groan even for daily food, be the occupation what it may; and man's judgment is often fallacious, and his reward frequently vanity. "One may beget a hundred children and live many years, yet if his soul be not filled with good, an untimely birth were better than he." I want no better inheritance for my sons, next to an honest name, than a thorough medical education. I should then die with the conviction of hav-

ing bequeathed them the most important of all learning, and communicated the best means of doing the most good. Ours may be the most difficult of all the sciences, the most laborious of all the professions, and honorary distinctions hard of attainment in it; but after all there is a recompense. We have the consciousness of having faithfully done our duty under very responsible circumstances, of striving to merit, and sometimes receiving the blessing of him ready to perish, and then the hope of reaping full justice hereafter.

"For blessings ever wait on virtuous deeds,
And though a late, a sure reward succeeds."

The good and great Boerhaave taught long ago, that we are to look for our reward on high: God, said he, is our paymaster for the poor; and it may be added emphatically, we be to that physician who lays not up this credit of his benefactions in heaven against the day of judgment. What though our services go unrequited here, our calling be neglected, and medicine be rejected by many as a science; we know it teaches us how to give eyes to the blind, feet to the lame, to deliver the poor, the fatherless and him that has no help. Heaven alone will reveal the good deeds our profession has done on earth without fee or reward. They are all recorded by Him, ever faithful and just: let us do our utmost to add to the record, that we too, may receive the recompense of the reward on high!

There are occasions in the history of passing events, when it is not only proper but may prove profitable to review the principles on which a science is founded, that a clear and definite comprehension may be obtained of its claims to be so regarded. Judging from the signs of the times, it would appear that such a period had arrived for medicine. Attempts have indeed been made to shake public confidence in nearly all the sciences, and we in particular, urged to admit the recent discovery of a supposed unknown agent which selects the human body as the special medium of its wonderful manifestations; and our profession, openly denounced, is virtually denied to

be governed by any fixed, demonstrable or positive principles. There are many who follow the advice of Aureolus Phillipus Theophrastus Bombastes Paracelsus, who, after burning the works of Galen and Avicenna three hundred years ago, publicly declared, that "if God will not reveal the secrets of medicine to them, it is perfectly justifiable to consult the devil:" this they do, too, to about as much purpose; for this prince of quacks invented an elixir of life, promising to lengthen our earthly days to those of Methuselah, but nevertheless died himself before reaching fifty and with a bottle of his physic in his pocket. To the profession of medicine alone, to the Professors of the Medical College of Buffalo, and more recently to Professors Faraday of London and Hare of Philadelphia, is society indebted for the exposure of this modern attempt to revive witchcraft. This spiritualism, like homeopathy and mesmerism, has no doubt amused, if not frightened, a goodly number of even grown up children, sadly deficient in their education; but no one has ever yet been seriously damaged in his physical structure by either of these non-entities: as to believers in spiritual rappings and table tippings, the real anxiety on the part of their friends has of late been to keep them out of bedlam. Many now we are glad to see abandoning this new revelation, denying the lord and master commended so highly by Paracelsus, and returning we trust to the old dispensation of things, that if haply they may yet be saved. Amidst, then, the smoke and dust caused by the explosion of one fashionable popular delusion so intimately connected with our vocation, and before another is imposed upon the community, for they must needs come like the plagues of Egypt, it is appropriate to the times, if indeed not called for by the arrant skepticism of the day in the principles of our profession, that we examine *the claims of medicine to be regarded a science*.

Etymologically, the word *science* simply means knowledge; but in its common acceptation is defined to be a collection of general principles, or leading truths relating to a given subject: or it is knowledge methodical.

ly digested and arranged. Medicine is a part of natural history which comprehends all we know of the operations of nature. It is both an art and science. The knowledge we possess of morbid affections and their curative indications is the science; the application of means to preserve health and cure disease is the art. Art observes and collects facts; science arranges and deduces conclusions from them.

The principles of a science may be self-evident, or demonstrable or only inferential; they may be well-established, positive or only probable. In arriving at knowledge all the mind requires is the recognition of facts, the cognizance of things really true. If perception, reason and judgment are satisfied, we admit the truth though it can neither be exhibited or proved. As a science we believe medicine is based upon certain elementary and practical branches, which of themselves are distinct sciences, either self-evident, clearly demonstrable or readily to be inferred. This I propose to establish, and think it can be done plainly, easily and certainly from what we know of *Anatomy, Physiology, Pathology, and Therapeutics*.

1. My first argument to prove medicine a science is drawn from the indisputable fact that we have a thorough, minute and comprehensive knowledge of the structure of the human body. This is the result of patient, careful, persevering dissections carried on for centuries. So perfect now is our knowledge of anatomy, that it embraces the minutest details of the whole organization of man; the bones, muscles, arteries, veins, nerves, ligaments, all the internal organs and the different tissues; including the recent revelations made by chemistry and the microscope applied to every fluid and solid of which we are composed.

It is well known that superstition, prejudice and a great repugnance to handle the dead, long opposed a minute examination of the human system. Aristotle expressly states he had a horror for dissection; an instinctive expression often heard even in our day. We naturally

venerate the departed and loathe putrefaction so inseparably associated with the dead, hence the general feeling on the subject. It is said that persons engaged in embalming in Egypt, became objects of public execration, and had to flee their country to escape an incensed people. The Roman law not only forbade anatomical studies but actually interdicted at one time, the practice of medicine; and as a consequence, we learn that even the great Cato employed incantations for fractures and dislocations. The Mahometan religion moreover taught that it was a profanation to dissect the dead. Owing to these restrictions, we need not be surprised that the anatomy of the ancients consisted of the few facts derived from a knowledge of the human skeleton, from dissecting inferior animals, from the process of embalming, and from the occasional inspection of an executed criminal. This is so strictly true, that even the renowned Galen, as late as the middle of the second century, congratulated himself in being so fortunate as to have seen two skeletons in Alexandria, and recommended all to go there who wished to study osteology. He is said to have been converted from atheism by contemplating this collection of human bones; and well he might, for if "the undevout astronomer is mad," much more he, who fully comprehends this noble structure, pronounced by divine inspiration to be fearfully and wonderfully made, yet strives to believe there is no God.

But if to Jew, Egyptian, Grecian, Roman and Arabian, the human body was a sealed book, the binding and cover only of which he was permitted to examine, with now and then a furtive glance at a page or two when accidentally opened, very different has been its treatment in modern times. The seal has not only been broken, but every chapter and section of it, every division and subdivision, every figurative expression and emblematic delineation; yea, every line and signification been fully interpreted, and translated into nearly all languages. This volume is rendered now so accessible, that we hope the day is not distant, when anatomy like chemistry, will constitute a

part of the learning of every well educated gentleman. It is said, that when Dr. Physick was presented to the celebrated John Hunter, to become his private pupil, he conducted him to the dissecting room, and pointing to some subjects on the table, observed, these are the books my students read. Judging from the title he afterwards acquired of father to American surgery, we may infer how faithfully our distinguished countryman must have studied this most interesting of all the works of nature.

Medical science dates its origin from the removal of the unnatural prohibition to human dissection. The study of anatomy acted as a new revelation in medicine. Not that every thing done and written up to this period was lost to the profession, but that all previously collected in it was rejected, which was not now confirmed by anatomical investigations. This is the true light by which all medical theories must be tested, and which was now permitted for the first time to enlighten our calling. Sylvius taught anatomy in Paris in 1532: ten years later Vesalius published no less than ten volumes on the subject, and this too before he was twenty-nine years old. It was early in the seventeenth century that the most momentous of all discoveries in medicine was made by Harvey; this was the true exposition of the circulation of the blood, and has done much to establish its principles on a sure and certain foundation. Some years later Berthelme recognized the absorbent system, Malpighi demonstrated the structure and functions of the lungs, and Haller those of the muscular and nervous organization; so that by the close of the last century, the human body had been pretty thoroughly and accurately described.

We find then in the peculiar economy of the early ages, an ample and satisfactory explanation, why medicine remained so long uncertain, and made so little progress in knowledge: but we also learn that as soon as the study of anatomy was permitted, it took at once a dignified position among the sciences constituting natural history. Imperfections of our art have ever been beyond the control of its cultivators: we have constantly de-

manded more light in the investigation of diseases, but have been forced by prejudice and supersition to grope in darkness. The lamp of life has burnt for thousands of years, but we denied the privilege of examining the body which it illuminated, even after the fire was extinguished. Hundreds of disorders have consumed the human system and we called upon to subdue the flame, but utterly forbidden to know the structure of the fuel thus reduced to ashes. Corruption has reclaimed it for its kindred dust and the worm banqueted upon it, but all investigations into the effects of diseases have been positively refused. And yet we are rebuked and daily taunted because medicine is not more scientific, more certain, more perfect. The true wonder rather should be, how under these adverse circumstances, so much could be known of diseases and their treatment, especially when the foundation of our science, *anatomy*, has been revealed only within a century, and dissections at all allowed for about two hundred and fifty years.

While laws are still in force, as they ever should be, against the wanton violation of the grave, they yet yield a reluctant acknowledgment to the necessity, and provision is granted under certain conditions to dissect. The British parliament has within a few years passed more liberal regulations on this very subject. Criminals who suffer condign punishment are generally by common consent given up for scientific purposes. The inmates of our large charitable institutions, our hospitals, poor-houses, asylums and infirmaries, after enjoying all their benefits, including the best medical attention and surgical skill; when they die, and have even to be buried at the public expense, if their bodies are unreclaimed by relations or friends, may with propriety be used for *post mortem* investigation. In the alms-houses of Paris more than six thousand die annually. Some of our hospitals furnish an immense number of subjects, for instance the Charity Hospital of New-Orleans. It is calculated that over a hundred thousand patients are annually accommodated in the eleemosynary institutions of New-York city. In

France a few dollars will pay for a full course of anatomical instruction, and subjects are offered for a few francs. In one or two of our States dissection is legalized, and our people are daily experiencing, (for every body is permitted to practice medicine in this free country), the best of all arguments to become convinced, that if the dead be not dissected, the living must be butchered for lack of anatomical knowledge. We can no more have surgery without anatomy than we can physicians without *materia medica*.

When the prejudice on this subject was greater than it is now, physicians and literary men were in the habit of bequeathing their bodies to be examined. The late Professor Godman, the christian physician, just before committing his soul to the Redeemer of mankind, declared, "I should be far more grieved to think that my body should be buried without examination, than to know that it would be left in the open air without the rite of sepulture." We would reverence even the dead body, but not at the expense of the living. It is absolutely necessary to the study and comprehension of diseases that these examinations be made. It is the only possible way by which truth, as to the effects of disordered action in the human system can be obtained. And we envy not that man's religion or philosophy, who objects to have his lifeless corpse inspected by his physician, when by so doing the health and lives of others, even, (as is often the case), the members of his own family may be preserved. Could *post mortem* examinations be still more commonly practiced, the interest of our science would be greatly promoted by the facts, invaluable to it, now consigned to the silent tomb. The grave may conceal the doings of irregular practitioners of medicine, the jackals and hyenas that prey in sheep's clothing in every country in our noble profession; but this slanderous insinuation cannot with truth be applied to the regular physician. We have no dirty work to hide under the ground. We would bring every thing to the light of day, the effects of our remedies as well as those of diseases on the human body, but the community will not permit us.

From the various sources just enumerated, we now ask if our opportunities have not been good enough and advantages sufficiently great, for the minutest examination of the human body? Can it be supposed that under these circumstances, with the incentives of curiosity, the love of self-preservation, earnest desire to relieve pain, heal wounds, cure the sick; to say nothing of the laudable ambition to comprehend all nature in and around us, and these motives operating for centuries, that we still have no positive knowledge of anatomy? Will it be presumed that some of the most talented, industrious, learned and good men in every age and country, having many of them the highest qualifications for the study, and latterly every requisite for anatomical research, do not yet understand our organic structure? Is it still believed we have no regular collection of general principles, no systematic arrangement of facts, no methodical digest of leading truths in medicine? If such a skeptic to medical science there be, let him enter our libraries and colleges, and examine the many works, published in various languages, each containing a complete system of anatomy, descriptive of the minutest details of every portion of the body. We refer him to numerous splendid plates filled with engravings colored to life, exhibiting fully, plainly and naturally the whole organization of man. Our libraries contain many thousand volumes, hundreds are added every year to the catalogue, and our periodicals are issued daily from the press. In the article on anatomy in our last medical dictionary, two hundred and thirty-nine authors are quoted. Up to the present time some five hundred writers have described the organization of the human system. Many of our publications are quite expensive. Alibert's work on the skin is twelve hundred francs, Paris price. A single anatomical preparation, the artificial man in papier maché, is sold at nine hundred and fifty dollars. Our museums contain every portion of the physical structure, either in the dried preparation, or preserved in alcohol, or represented in wax, or composition, and the minute parts are magnified, the better to comprehend them. We hope

no one will deny our familiarity with the skeleton; that we know all about the two hundred and forty-two bones composing it. In our lecture rooms subjects are most carefully and minutely demonstrated; every muscle of the five hundred and twenty-seven, two hundred and fifty-seven being in pairs, is fairly exhibited; all the numerous arteries, veins and nerves are traced out from their surrounding connections; and the different viscera of the three great cavities, the head, chest and abdomen accurately exposed in their natural positions. Every student in our numerous medical colleges is required to dissect for himself, and demonstrators are regularly appointed to assist him in this work. With this exposition of the subject, can any reasonable person doubt that anatomy is a science? That which we see and handle at any time, which reason and judgment confirm at all times, and the admission of the existence of which violates no physical law, must exist, must be true. If then the evidence of our senses when corroborated by the understanding is to be believed, anatomy is not only an inferential or problematical, but a demonstrated, fixed, positive, self-evident science.

To the physician and surgeon this opaque body is transparent, illuminated by the light of anatomical science. What to others appears dark, mysterious, repugnant, are to them familiar realities, well attested facts, plain, unquestionable truths. This skin and bone, this flesh and tendon, these internal organs and various membranes, are as crystal through which we inspect every moving fibre, behold every circulating fluid, scrutinize every action, see every nerve, count every pulse. We, and we alone, know the relative position of every artery and where it can best be exposed for ligation; and can thrust the knife through every joint susceptible of disarticulation. In amputating any member, we describe every tissue, muscle, blood-vessel, nerve and bone which have to be divided. By the application of physical laws to our science, we ascertain not only the exact position of the internal organs, but their actual condition; we can even measure the

diurnal changes in a diseased lung. At one time, we penetrate the tenderest organ of the body, and as by enchantment, blindness ceases: at another, we elevate the depressed skull, inspect the brain, and reason is restored. Could these things be done in a thousand distant localities, without there were general principles to govern these movements, without some systematic order regulating these operations? Most assuredly not. Is not then the inference irresistible that surgery to be successful must be based upon a certain science, and this is well known to be anatomy?

But a still higher position than even this may be claimed for our knowledge of the human organization; it is not only a certain, it is also a perfect science. And in support of this assertion, the fact is now announced, that of the many thousands who have been most assiduously engaged during the present century in dissecting, not one has made a discovery in these investigations of sufficient importance to entitle his name to identification with it. During this whole period of more than fifty years, the most enlightened the world ever saw; one too, in which in nearly every other art and science the greatest discoveries, inventions and improvements have been made, the scalpels of all the anatomists combined have not presented a single new fact or truth; and for the simple reason, there remained no revelation to be made in anatomy. With the exception of what chemistry has done and the microscope is now doing on this subject, it may be proclaimed without the fear of successful contradiction, that to the natural eye nothing has been added within the present century to our knowledge of the human system, because of the perfection to which anatomical researches had previously attained. It is upon anatomy that the whole superstructure of medicine as a science is erected; it is both the key and corner stone of our professional usefulness; and if it has been made evident that physicians and surgeons do certainly and perfectly comprehend the organization of man, therein have we one good argument to sustain the position that medicine is a science. And if

the foundation be secure the building we are told will stand. Truth is indeed mighty; the stormy blasts and angry surges of sarcasm, skepticism and charlatanry have long beat upon this noble, benevolent, glorious profession of medicine, but have not and cannot prevail against it, for it is founded upon a *rock—a knowledge of the physical structure of man.*

2. Upon such an irresistible argument as that presented, I might be content to rest my case before every candid mind, but there is other evidence which I hasten briefly to consider. The second one in support of the position that medicine is a science, is derived from Physiology, a knowledge of the functions performed in the animal economy. The science of life is deduced from anatomy. We ought first to know the construction of an instrument before we can fully comprehend its action; understand how a machine is made prior to obtaining correct ideas of its movements: so the organization of this arm or heart must be known ere we can have an intelligent comprehension of the functions it performs. But it has been admitted that it was not until recently that the structure of the human body could be accurately described from dissections; it cannot, therefore, be reasonably expected, that all the principles of vitality, that all the movements of a mechanism so complicated, so minute, so obscure, as the human system is known to be, have already been ascertained and defined. We confess that we do not fully understand all the music of this harp of a thousand strings, but believe we are fast reducing its notes to order, and every phenomenon of life will, no doubt, be soon perfectly understood.

Hippocrates, the father of medicine, often alludes to the embarrassment experienced through ignorance of the functions performed by the body. He knew the blood flowed from the center to the circumference, that all the viens communicated, but did not detect the circulation in the arteries. Galen experimented extensively on living animals, but was unfortunately too much influenced by the

supposed agency of the four ancient elements in his explanations of the phenomena of life; which unsatisfactory as they now appear, nevertheless prevailed for thirteen hundred years. Upon the revival of letters in Europe, alchemists saw little else in the internal movements of man, than the action and re-action of chemical agents; and then the mechanists could only observe the operations of pistons, levers and pullies. The most plausible, however, of all these speculations was founded upon the supposition that an intelligent agent presided over our system, charged with the supreme direction of the animal machine, by which all its functions were regulated, and to which many ascribed supernatural powers. It is this idea of an agency independent of the immortal spirit and reasoning faculties, that we find so frequently leading men away from the dictates of common sense, and mystifying the ordinary dealings of providence or nature. This pretended transcendentalism is an absurdity, and a mockery to Him who has given us five senses to observe the world around us, and an understanding within to correct erroneous perceptions, that we may know the truth of things as they really are: and in regard to the connection of mind and matter, He too, has condescended to make a divine revelation, but man has sought out many foolish inventions. Even professors of religion walk now by sight and not by faith; they see too just what they believe, and do not believe what they really see. Vain imaginings and unintelligible babblings are preferred, though contrary to holy writ. Astrologers and soothsayers are again consulted, and wonderful revelations are almost daily announced in politics, morals and medicine, and what is worse, believed by numbers of good people, though violating the laws of nature, reason and common sense. Few now incur the responsibility of thinking for themselves.

Bartez having observed phenomena in man inexplicable by the laws of inert matter, introduced the term vital principle. Glisson first employed the word irritability in the sense we now use it; and Brown substituted for it

excitability, which has been more generally adopted in the profession. By these expressions we simply mean that phenomenon of life distinguishing living from dead matter. The most important facts to physiology were made known by Bichat about sixty years ago; these were the reduction of our organs to their elementary structure, and the proof that each tissue possessed peculiar properties regulating its vital movements. It was not until the close of the last century, when anatomy and chemistry were much better known than they had been previously, that physiology began to be considered a science. It was absolutely necessary that the circulation of the blood should have been discovered, absorbent vessels described, the fibres of the muscular and nervous systems ascertained, the peculiar properties of the elementary tissues demonstrated, before the important offices performed by the various organs could have been understood. Not only were these facts essential, but considerable progress must have been attained in the physical sciences, to a satisfactory comprehension of physiological truths. The composition of the atmosphere had first to be ascertained, before demonstrating the changes induced in it by respiration, and consequently what were the functions of the lungs. Again, the properties of acids and alkalies and their action upon vegetable and animal substances must be known to understand the process of digestion. We thus plainly see the intimate association of anatomy and chemistry to physiology, and how at least these two sciences must necessarily have preceded it. What they have done the microscope is now engaged in verifying and perfecting.

The science under consideration consists of a collection of facts most carefully observed, and the deductions from them of general principles most rigidly yet fairly inferred. From a patient and faithful study of nature, a minute and persevering examination of what is habitually passing within us, by comparison with inferior animals, by vivisections, and by the aid of collateral sciences, many well established and highly important truths have

been accumulated in physiology. We certainly know the circulation of the blood, its composition and the proportion of all its elements. We accurately measure the force and count the number of pulsations of the heart; have ascertained the quantity of the circulating mass, that it is the most compound of all known fluids, and that from it all the various and heterogeneous secretions are derived. We prove the doctrines taught by Moses to be true, that the blood is the life of the flesh and our lives in the breath of the nostrils. We live by the oxygen of the air, and can compute the quantity consumed at each respiration and note the change it undergoes by this process. The function of digestion, we have learnt requires not only the animal heat, motion and the gastric juice, but a certain nervous influence, for which galvanism may be substituted for a time. We are aware that the operations of the senses are many of them explicable by physical laws. All the elements entering into the composition of the body have been carefully and repeatedly analysed, and with magnifying glasses every moving fibre, however minute, and every circulating fluid, however attenuated, have been thoroughly scrutinized. But there is a point in physiology, as in all human knowledge, beyond which we cannot go. Imperfection is stamped on all things sublunary. There are mysteries connected with life. We know for instance that the retina is the medium of conveying light to the mind, but how or why only there, we may never tell. Impressions are conveyed to the brain and spinal marrow and reflected from them, but what is the nervous influence or vital principle has not, and it may be, cannot be explained. But it is sufficient for our purpose to show that nature, even in her vital movements is always governed by general principles, and that to have ascertained these laws, proves how far we have advanced in interpreting the phenomena of life. There is even great uniformity in the number of deaths from diseases—thus contrasting 1851 and 1852 in London, we find that affections of the heart stand 1971 in one year to 1955 in the next; convulsions

2,029 to 2,024; dropsy 811 to 818; peritonitis 213 to 217; hernia 144 to 142; insanity 114 to 112; ague 19 to 18; ovarian dropsy 46 precisely each year. It is a mathematical certainty, without variation or the shadow of a doubt, that for every hour so many are born and so many die. It is a law of nature that more males shall come into the world than females; that not more than half of all born reach seven years of age, and that in thirty all die; that a certain definite proportion must die in every community; that our allotted sojourn on earth is three score years and ten. There may be occasional exceptions to the correctness of these figures in individual cases, but for the masses of population they are positively true. This has been most fully illustrated by the following recent facts—a prize was offered by the cotton merchants of the United States, to him, who by estimation from the crop of 1851, would come nearest to the actual number of bales made in 1852. The award has just been given to a number named not nearer than about 10,000 of the true one. Now for the month of December, 1852, the average mortality for the city of London, based upon the calculation of the previous ten years, and corrected for increase of population was 4591; the actual number of deaths was 4597: difference only 6. The registrar-general of Great Britain can predict for each year almost the exact number of deaths, although amounting annually to over 300,000 in that kingdom. All we claim for physiology is that it is an experimental, and from its very nature an imperfect science, but these results in vital statistics would make it not very remote from even a mathematical demonstration.

The aim of physiology is to expose the phenomena of life, and this can alone be done by the most faithful study of the most wonderful work of nature. We deal with simple facts, naked truths, well established realities; and thus indeed has this modern science of life been created. We take pride in stating that the circulation of the blood, the absorbent system of vessels, the introduction of vaccination against small pox, the use of chloroform,

were all discovered by the inductive philosophy of Bacon; and could we carry out our views in regard to the registration of births, marriages and deaths throughout the world, many valuable details and calculations might be made in vital statistics. From the results of analytical chemistry and the more recent revelations of the microscope, definite and satisfactory explanations can now be given of nearly all the phenomena of life.

3. My third argument to sustain the claims of medicine to be regarded a science, is founded upon what we know of the effects of diseases on the human system; this is Pathology, or the knowledge of morbid affections.

The importance of this department of medicine has only recently been fully appreciated, but having been acknowledged, it has received a large share in the improvements lately made in our profession. Its object is to search out and expose the causes of diseases, their peculiar characteristics, appearances, laws governing them and their terminations. The value of this knowledge to the physician must be self-evident. Unless we know the alterations produced by disorders, in vain will be the attempt to correct them: unless we comprehend the evil aright, how can we intelligibly apply the remedy? Diseases are characterized by changes more or less extensive in the organization of the fluids and solids composing the system; pathology is engaged in not only ascertaining what these alterations are but in classifying them: it teaches in other words, what diseases are.

Life is the result of the action or function of many organs, each having its own appropriate office to perform, but all contributing to one great purpose, the maintenance of order or health. Disease is the irregularity in one or more of these organs, which in itself is the effect of a previous alteration in some tissue or fluid; the manifestation may be only functional, but the disorder is always structural. When the affection is external, we determine its character by inspection; but to ascertain the nature of one situated internally, a combination and

comparison of many circumstances are required. This has ever been one of the most difficult subjects connected with medicine; the ascertainment or diagnosis of diseases. Very various theories have been proposed respecting the true character of our morbid affections, all having their origin and seat either in the fluids or solids. We admit now that both humorists and solidists are correct to a certain extent, and neither so exclusively.

No one has described disease better and with fewer advantages, than did the very founder of systematic medicine, Hippocrates himself: and we recognize in his writings even to the present day, fevers and epidemics which have occasionally prevailed for centuries. Correct as the ancients were in many of their opinions respecting pathology, for they were close and accurate observers of nature, still they could not verify their theories by *post mortem* examinations. It is only since the cultivation of morbid anatomy, that it has assumed a true scientific character. It is in this department, that French medical philosophers have done so much. It is said of Laennec, that he personally made no less than five thousand *post mortem* examinations. Julius Cloquet dissected two hundred and fifty subjects, to ascertain a single anatomical fact; the relative position of a branch of one artery. Richard Quain examined three hundred and sixty-two for this same purpose; and before publishing his work on the arteries, had dissected one thousand and forty subjects. Louis collected in a few years one thousand nine hundred and sixty cases, and made three hundred and fifty-eight minute dissections, each occupying two hours, all in one affection, consumption. Some of our most distinguished physicians and surgeons are in the daily habit of devoting two to five hours in their investigation of diseases in the hospitals. Galen is said to have been the author of 500 volumes; Harvey was twenty-six years studying the circulation; Jenner was engaged years in introducing vaccination for small pox; John Hunter for thirty years rose before the sun and worked, (chiefly dissecting,) until 12 at night; Velpeau up to 1844,

had published 25,000 pages; Dr. Chambers of London, is said to have private notes of 67 quarto volumes of 400 pages each; Dr. Marshall Hall, now in this country, says he spent 25,000 hours in the investigation of the reflexed nervous system; Dr. Robert Lee for seven years rose at day-light and dissected until 8 o'clock the nerves of the uterus. I think it may fairly be inferred that such men ought to know as much of the human system as natural doctors, compounders of pills or manufacturers of syrups. So too thought Jefferson, Adams, Clay, Calhoun, Story and Webster; it is said they never took quack medicine.

We acknowledge it requires a man of cultivated mind, one free from prejudice, of sound judgment and good memory, to seize and justly appreciate all the indications offered for detecting diseases. There may have been few, but we do think such men have existed in medicine, and their successors, it may be presumed have profited by their experience. We know too, there are many circumstances requiring the profoundest consideration, before we can pronounce on the true nature of a morbid affection. In a given case, we are to study the peculiarities of the disease, the period of its invasion, its symptoms, causes, seat or location, tendencies, the constitution of the patient, the epidemic character of the atmosphere, the morbid anatomy of similar cases, &c., &c.; before arriving at a safe conclusion respecting its pathology. The name of a disease may answer the purpose of vendors of balsams, panaceas and liniments; but the regular practitioner of medicine dare not presume, when he deals with the health and lives of his fellow-beings. We never prescribe for the name of a disease. General directions may be given for a prevailing epidemic, or an absent patient whose constitutional peculiarities have been studied, or an antidote directed for a poison; but in every case many indications must be carefully compared to ascertain their true import. Disease is not an entity, a being, but the effect of certain causes operating on an individual, and necessarily modified by age, sex, temperament, habit,

profession, &c. As every individual is recognized and distinguished from all others by his own appropriate physiognomy, so in like manner he has a peculiar constitution, which necessarily produces modifications in him of all morbid actions. No two persons have ever existed alike, and though contrary to an oft repeated assertion, no two cases are precisely identical. What is food for one man, may not only poison another but be prejudicial to the same person at a different time.

The application of physical means to the diagnosis of internal diseases, has tended greatly to render our knowledge of them more accurate. The stethoscope and percussion are available in the affections of the chest and abdomen, two of the three great cavities of the body, and these constitute the large majority of all our internal disorders. The microscope too, is employed to ascertain the nature of morbid products by revealing their minute atomic structure; and we have now large collections of pathological specimens where can be studied the various results of diseased action.

A knowledge of anatomy and physiology are indispensable to pathology, and in studying diseases we are ascending the scale of medical science. We first learn the structure of an organ, then the function it performs, and now thirdly, the various derangements to which it is subjected. Morbid affections are nothing more than perverted action in the anatomy and physiology of the part affected. To diagnosticate is one of the highest duties the physician has to perform, and is only second, but should always precede the application of curative means to disease, the end and aim of all his knowledge. Nature being unlimited in the production of morbid affections, pathology can never be perfect or complete; still under the guidance of principles now well tested by enlarged experience and the extensive observation of several centuries, there are few disorders of the system which cannot be definitely and clearly ascertained. If we cannot cure, we certainly now know the ill's flesh is heir to, the internal as well as those termed external.

4. The fourth and last argument I offer in support of medicine being a science, is derived from Therapeutics; our knowledge of the means employed to relieve or cure disease.

There exists in all organized beings, a vital action which resists destruction. Like every thing else, we only know it by its effects, and it is called vital principle, vital force, *vis medicatrix naturæ*, or simply by the word nature itself. The change from disease to health, is the result of this agent, silently but effectively operating on our fluids and solids. The most of our disorders are relieved by nature alone, some even recover in spite of bad medication, while not one is cured by art alone. Were it not for this re-action of the vital forces, the mildest dose of medicine might, and the simplest operation would, inevitably prove fatal. But though this candid confession is made by which the health-restoring powers of nature are exhibited most favorably; yet it must be admitted that there are many articles which can modify her actions, assist and even control her in the prevention and cure of disease. The knowledge of these means is what we understand by therapeutics.

All agents applied to our deranged organs with the view of curing or relieving them, are embraced in this art and science, and are derived from the animal, mineral and vegetable kingdoms; it also makes every other occupation of life tributary to it: especially is this true of chemistry, which teaches the elementary composition of all substances, and of pharmacy, which prepares articles for medicinal use. All our knowledge of therapeutics is derived from carefully conducted and well observed experiments. All the reason in the world never would have taught us that quinine could prevent chill and thus cure fever. It is experience and experience alone; the results of enlightened experiments from which we have obtained this all important knowledge. The exact effects of any or of all the articles of the *materia medica*, even in a single dose can never be fully predicted, since they operate upon living structure, which in itself is incessantly

undergoing changes and modifications. Life is but one continual turmoil. While the various organs and the body preserve their form, the constituent elements of which they are composed are in perpetual commotion. The molecule deposited as nutrition to-day, is absorbed and thrown off as effete matter to-morrow. To ascertain the action of an agent on the human system, numerous performed experiments on inferior animals are first made before trying it on man. The experience even thus obtained, to be valuable, must be subjected to comparison; every result should be rigidly investigated, every position strictly scrutinized, every fact fully confirmed. Personal experience, so highly prized out of the profession, is of little value to science, because it dies with the individual, and it requires the corroboration of several to deduce a general principle in medicine. We acknowledge no authority in our profession, the observation of no man without it is sustained by others. Truth, said Tacitus, is obtained by delay and investigation, while falsehood avails itself of haste and uncertainty. Dr. Rush declared experience without principles is empiricism.

Another prevalent error is to confound the treatment of diseases with the remedies employed. There is a very general opinion that for every disorder nature has provided a cure, and thousands have been and are still engaged in ransacking every portion of the globe, compassing sea and land, consulting every old African, Indian and talking old lady, and torturing every creature to find specifics for evils entailed on ourselves by our own sins and folly. We run counter to nature, violate every principle of hygiene, rush into the very jaws of a devouring epidemic, and yet utter the absurd belief in a natural remedy for every ill of life. Men will put an enemy in their mouths, to steal away their brains, and expect nature to replenish the empty cranium: they chew poison and spurt the saliva in every direction but the true one, (into the stomach,) and think it quite rational to look to providence to furnish a remedy, ready prepared, to cure indigestion. They make life as artificial as possible, yet talk loudly of natu-

ral remedies. As no Indian, African or natural doctor has ever yet contributed an iota to science, we must continue to believe them fully as natural in another respect; yea exceedingly simple: and so too must ever be their patients. The experience of six thousand years on this subject, has demonstrated the fact that there is not one remedy which will cure all cases of any certain disease. Prof. Chomel, one of the most distinguished living pathologists, declares, there are no three diseases invariable, or even with certainty cured, by three remedies; and he justly remarks, it is precisely in those very affections, as consumption, dyspepsia, in which none exist, that there are the greatest number of pretended ones. The public always reason in medicine, *post hoc, propter hoc*; that is whenever a therapeutic agent is employed, the amelioration of the patient following, is invariably to be attributed to it; forgetting that in many instances, nature has done all, and that the most judicious practice in many cases is to give no medicine at all. In a hospital a few years ago, it was designed to test the effects of powdered hops in twenty-two cases of intermittent fever; but it so happened the article could not be procured for a few days, when this paroxysmal affection was found to have ceased spontaneously in nineteen of them, and in the remaining three it produced no benefit, though used in large doses: so that by a brief delay alone this inert article just escaped the credit of curing nineteen out of twenty-two cases of fever.

We are pleased to see the separation widening every day between the trade in medicines and the practice of the profession, for the interests of the two callings have too long been confounded. The duty of the physician is to relieve his patient as speedily as possible and by any or all means combined without regard to any pecuniary consideration, especially in the agents employed to effect this desirable end; while the apothecary, druggist, or more particularly the vender of patented nostrums, does all he can to promote the sale of physic. Their interest is fully expressed by the advice of Meg Merriless to

Domine Sampson, when hesitating to take her devil's broth, she exclaimed, "*gape, sinner, and swallow.*"

The treatment of diseases, as Bayle said, is not the employment of such a remedy against such an affection, but the manner of combatting the effects of disease in detail by various means. Therapeutics should be regulated according to the circumstances of the case, the sex, age, constitution, habit, &c.; but the principle of the treatment is always the same. By using the common language of curing diseases we only mean that we assist nature in her curative operations. We seldom ever attempt to assume the management in her stead. We never cure, quacks say they do. We can prevent, allay, possibly control, but cannot heal. This we believe is the prerogative of Him who creates. Quinine may prevent fever; opium may relieve pain, bleeding arrest inflammation; but who can cure when in less than twenty-four hours there may be disorganization in the structure of the part affected. In cholera and other epidemics patients die in a few hours; there are diseases determinedly fatal, constitutions that succumb to slight impressions. Who can contend with the pestilence walking in darkness, the destruction wasting at noon-day?—Who change the constitution of the air we breathe?—Who remove the influence of a wide-spread epidemic? If the patient have not the constitution to resist the attack, we can't create it: if his system will not react, therapeutics must be powerless in his case. Who needs too, be reminded in the beautiful language of the poet,

"That our hearts,
Like muffled drums, are beating
Funeral marches to the grave."

Since then we cannot cure but may prevent, to preserve health has become the great question of the day, involving as it does the dearest interests of humanity. The chief end now of medicine is the prevention of diseases, hence the importance given to hygiene and sanitary regulations. It is said that during the last course of lectures delivered by that great American sage of medicine,

the venerable Dr. Rush, when he had become too feeble to stand up to speak, he rose from his chair, and said, gentlemen, I wish to impress two words upon you: *obsta principiis, obsta principiis*—check the very beginnings of disease.

The experience of many centuries by thousands of observers has taught us the true action of the therapeutic means now generally employed, and we have correct and abundant data to calculate their effects on the system. Time would fail me even to enumerate the well-known properties of salts, tartar emetic, opium, mercury, &c., &c., or to prove that we can control the progress of acute attacks, prevent paroxysmal affections, relieve pain, arrest hemorrhages, extirpate tumors, remove useless limbs, &c., &c. Official statistical reports will fully sustain these declarations, and confirm the position that the practice of medicine is regulated by scientific principles. In a late voyage around the world by one of our public vessels, of 2241 admissions to the sick list only 8 died, the remainder with a single exception were all well and had returned to duty; here is less than 1 death to 155 cases in a ship at sea. In 1851, in St. Bartholomew's hospital, London, there were 85,656 admissions, of which number only 444 died; and for the same period in the St. Thomas, there were 55,043, and 236 deaths; making a mortality of less than 1 death in 205 cases of hospital practice in the largest and most crowded city in the world. The late celebrated obstetrician, Dr. Merriman of London, states, that from the bills of mortality of that city for 1680, 1 in every 44 female patient died under treatment; fifty years later, 1 in every 70 cases was fatal; in another fifty years, 1 in 82; and in forty more years, that is in 1820, only 1 in 107—thus showing fifty-nine per cent of mothers saved under the most critical circumstances, and all by this much abused and often contemptuously treated science of medicine, during the progress of 150 years. Nearly two-thirds more of parturient females are now restored to society, every one of whom would have been lost a

century and a half ago but for the improvements in our profession. Where is the husband, son or daughter; where the man, with a spark of gratitude who can revile this noble, this life-giving science of medicine? In 1786, Prof. Simpson of Edinburgh, says, the statistics of surgery for Edinburgh and Wales, exhibited a mortality of 1 in 42 cases; in 1801, it was 1 in 47, in 1851, 1 in 58—showing thus a reduction of deaths by 28 per cent in the short period of half a century. Macauley, the great historian, declares the general mortality of the kingdom of Great Britain has diminished one half in 150 years.

That which is true of vital statistics in general is also correct when applied to particular diseases. The cooling treatment proposed by Sydenham in small pox, the animal diet in diabetes suggested by Rollo, the cold affusions in fever recommended by Currie, the present doses of quinine in fevers, are instances of the ameliorating effects in the modern practice of special affections. The results in the treatment of pneumonia by Louis in Paris, in 1821 to 1833, confirmed as they were by Grisolle in the same city in 1840, and by Jackson of Boston, in 1836, are striking examples, and proof positive how greatly have the symptoms of this disease been mitigated and its mortality diminished at the present day. The science of medicine has even destroyed some diseases; they are known now only in history, or only occasionally met with in a modified form. This is true of leprosy, of the plague, of a well-known contagious affection; of the small pox, we point with exultation to

“Immortal Jenner, whose gigantic mind,
Brought life and health to nearly half mankind.”

And in regard to physical suffering, we now say to the dreaming patient, awake, the dread operation is over; arouse mother, behold your child! God-like indeed, must be that science, which can annihilate pain!

But there are mysteries wrapt up in the production of diseases. We cannot yet devine the causes of them.

It has truly been said the very nature of an epidemic is to walk in darkness. With all the deep solicitude on the subject, the earnest desire to prevent diseases, we know not the sources of many of them. We have not yet analysed that peculiar constitution of the atmosphere on which they seem to depend. But this much we do know, that temperance, cleanliness, regular habits, and a firm reliance on divine providence are the best of all preventives. These are the true remedies against the production of disease. The profession of New Orleans warned again and again the city authorities on the subject of the abominably filthy condition of the streets, but to no purpose; and when thousands of its inhabitants had died of yellow fever, we learn through the papers, the mayor had just thought of prosecuting the street commissioners. Thus has it ever been with medical evidence, and thus it would be, if the cholera were approaching this city. The day may have passed when the community believe we produce disease, but has not yet arrived when our warnings are heeded in their prevention.

And now, my young friends, what think you of medicine; is it a science or not: is it governed by principles in its contest with disease and death: is there a systematic arrangement of facts, a methodical digest of leading truths to regulate its practice? Is our knowledge of Anatomy sufficiently minute; of Physiology accurate enough; of Pathology well observed; and of Therapeutics so correct that we have deduced valuable conclusions from them? Do we know medicine or not? I have attempted, it is true very imperfectly, to present you at the commencement of your professional career, and as appropriate to the occasion, some reasons why these questions should be answered in the affirmative. A firm believer in the doctrine that medicine is a science, I have uniformly, under all circumstances; yea, under trying scenes, endeavoured faithfully to sustain the honor and dignity of this profession. Whatever may be my faults, and I would ever confess they are many, temptation has never betrayed me into the use of

quack remedies. While I would say to no professional brother, holier than thou, yet during the practice of a quarter of a century, I have never made a prescription, the contents of which I did not believe I knew. In regard to nostrums and nostrum-venders, it has ever been my determination to avoid the very appearance of evil. I have even declined using McMunn's elixir of opium: and I rejoice to know that in the enterprise before us, my colleagues in this respect are all good men and true; and in the fore-front of the battle contending against irregular practitioners in and out of the profession, is the Nashville Medical and Surgical Journal, having inscribed upon it, to honorable medicine.

The christian, amidst the contentions of life, has the bible to guide his steps through his earthly pilgrimage to the sure rest above; the mariner in his lonely voyage over the trackless ocean consults his chart and compass to direct him to the desired haven; and so the physician in his practice should be regulated by the principles of his science as by a polar star. This should be a lamp to his feet and a light to his path; a cloud by day, and a pillar of fire by night: for it is expected that he will run and not be weary, walk and not faint. So that at last when life's toils shall have ended and his labor of love be done, conscious of meriting the epitaph of the beloved physician, he may

"then, sustained and smoothed,
By an unfaltering trust, approach thy grave;
Like one who wraps the drapery of his couch
About him, and lies down to pleasant dreams."